

FOOD ROUTE.

As cooking kills all germs, food containing typhoid germs must be food that has not been cooked, that is, *raw food*, or food that has been cooked and then handled by some one whose hands are contaminated with these germs. Naturally, the raw foods will be most likely to contain the germs. As milk is, by all odds, the commonest raw food consumed, and as in cities it is handled by a large number of people before reaching the consumer, it is more often the means of transmission than all other raw foods combined. From 15 to 20 per cent of all epidemics are due to milk transmission. Occasionally, other raw foods, such as oysters, clams, celery, water-cress, lettuce, onions, turnips, and ice, may serve as the medium of transmission. Probably from 2 to 5 per cent of the total number of cases are carried in this way. All of these raw foods—milk included—become the means of transmission by some one with the disease, or who has had the disease and still carries the poison, having handled the food before it is swallowed; or by the handling of the food by some one who at the time is associated with a case of the disease; or by the vessels in which the food is contained having been washed in water that has become contaminated in some of the various ways mentioned under water route; or, finally, by flies carrying the infectious material to the food over which they crawl.

There are a number of epidemics clearly traceable to milk. Characteristic of milk epidemics is the fact that when the town suffering has several dairies, over 90 per cent, often 95, 97, or even 98 per cent, of the cases will be on a single dairyman's route; the cases occur almost solely in the consumers of milk, and therefore the cases are more frequent in children than in adults, and more frequent among the better classes than the poorer classes, as the latter use less milk than the former; investigation nearly always reveals a case of the disease with which some one of the dairy employees is more or less closely associated; examination of the water supply finds the water pure. Lastly, milk epidemics are very rapid in onset, a large percentage of the cases coming down in the first week of the epidemic, whereas epidemics due to water are slower, more gradual, in onset.

CONTACT INFECTION.

By which we mean the contamination of an attendant's hands with microscopic bits of saliva, urine or stool, through the handling of the body, or something that has touched the body, of a typhoid patient. The poison is then transferred to the mouth or food that is later eaten. This would be avoided if the attendants on typhoid patients would carefully wash the hands in an antiseptic wash after handling the patient or his belongings, or before they put their hands or something handled by them into their mouth. About 5 per cent of all cases are contracted in this way. The danger from this form of infection is directly proportionate to the sanitary intelligence and carefulness of those caring for the sick. The danger through contact infection is especially great where large numbers are thrown together, as in jails, and particularly in military encampments. Among 5,000 Boer prisoners held by the British army in the Ceylon hills, 700 of them had typhoid fever in three months. The guards, using the same water and food supply, escaped the disease. In private homes, statistics, based on 13,000 cases, show that 85 per